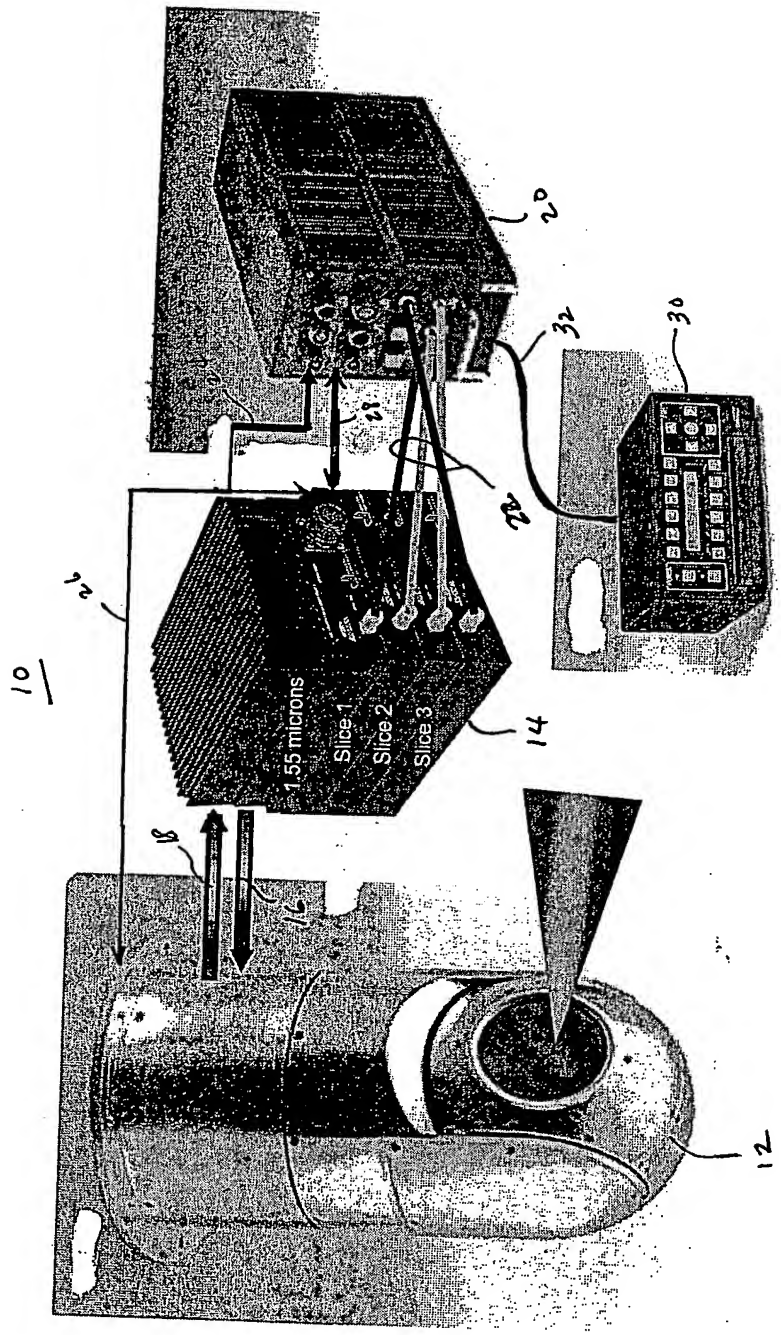

FIG. 1

BEST AVAILABLE COPY

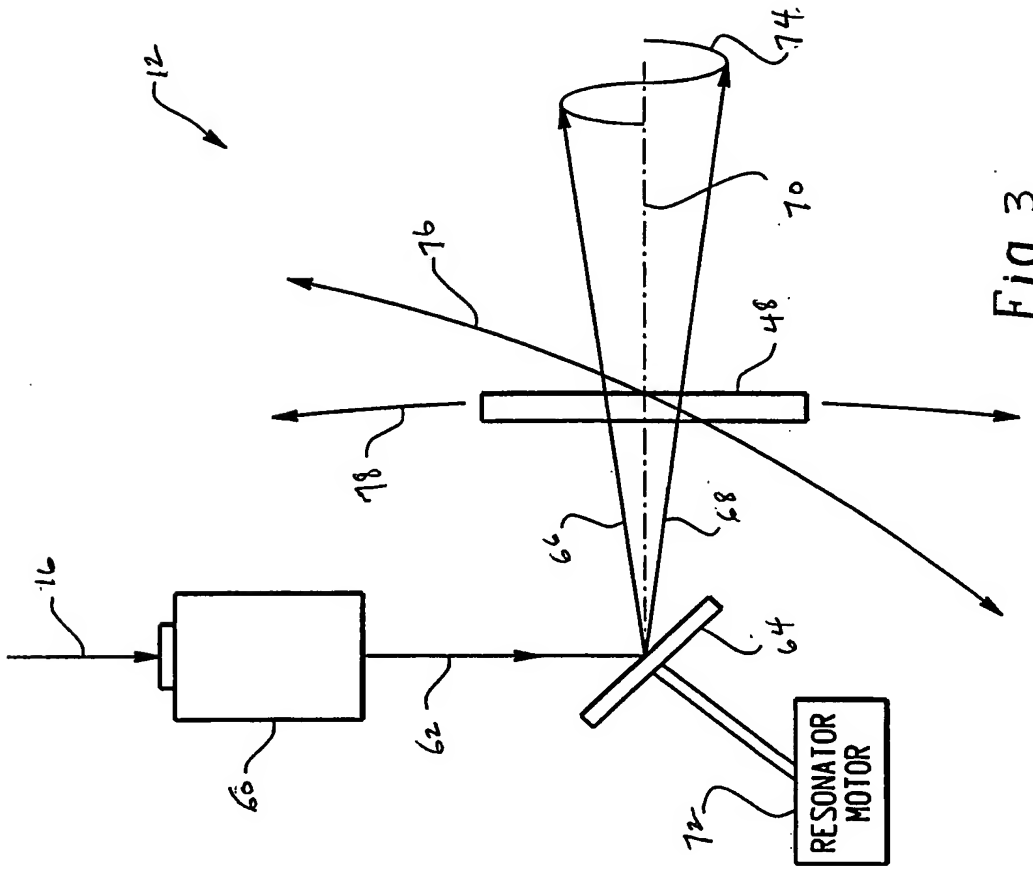
12
74
70
76
48
78
66
68
16
64
62
60
72
RESONATOR MOTOR

Fig. 3

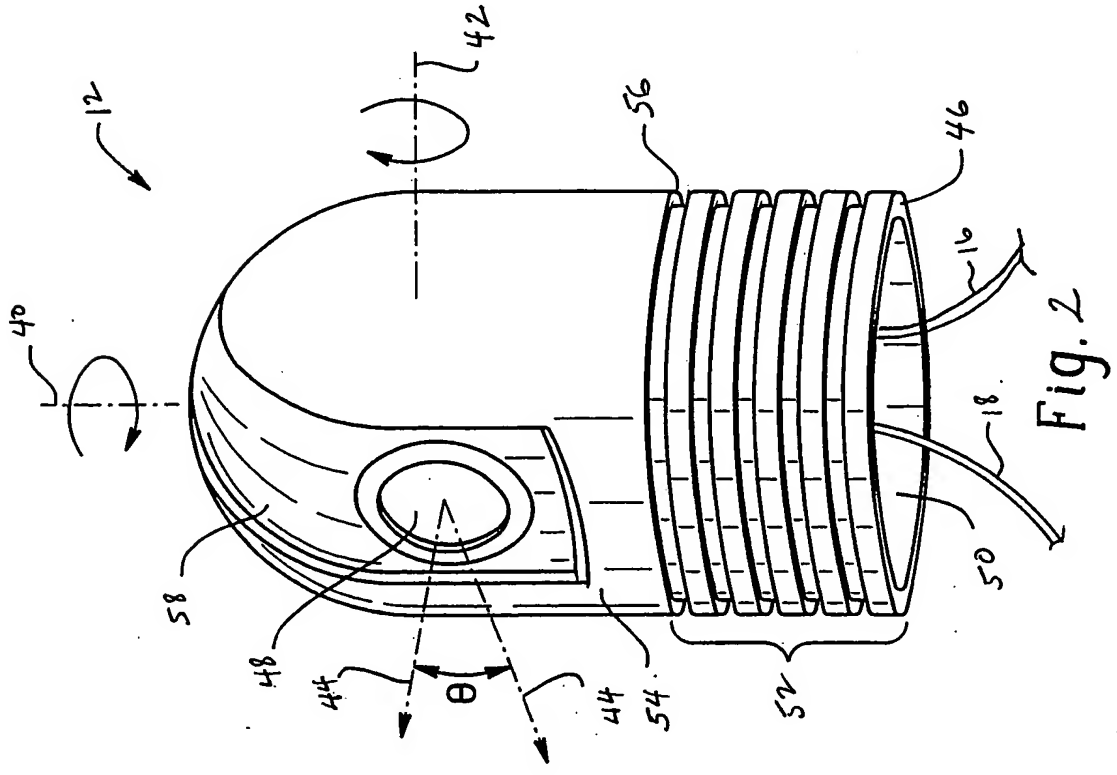
42
12
56
46
16
40
18
58
50
48
44
θ
44
54
52

Fig. 2

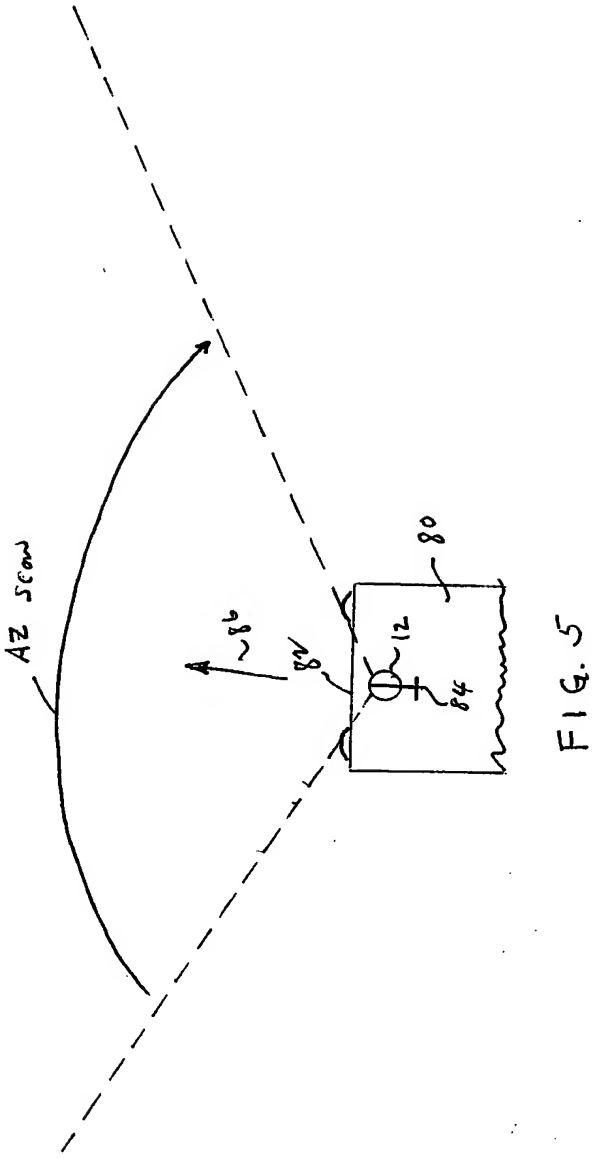

FIG. 5

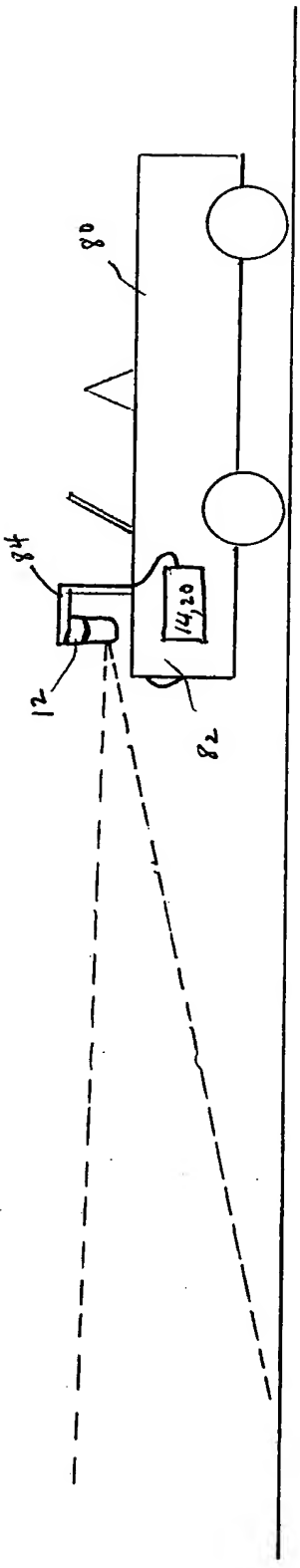

FIG. 4

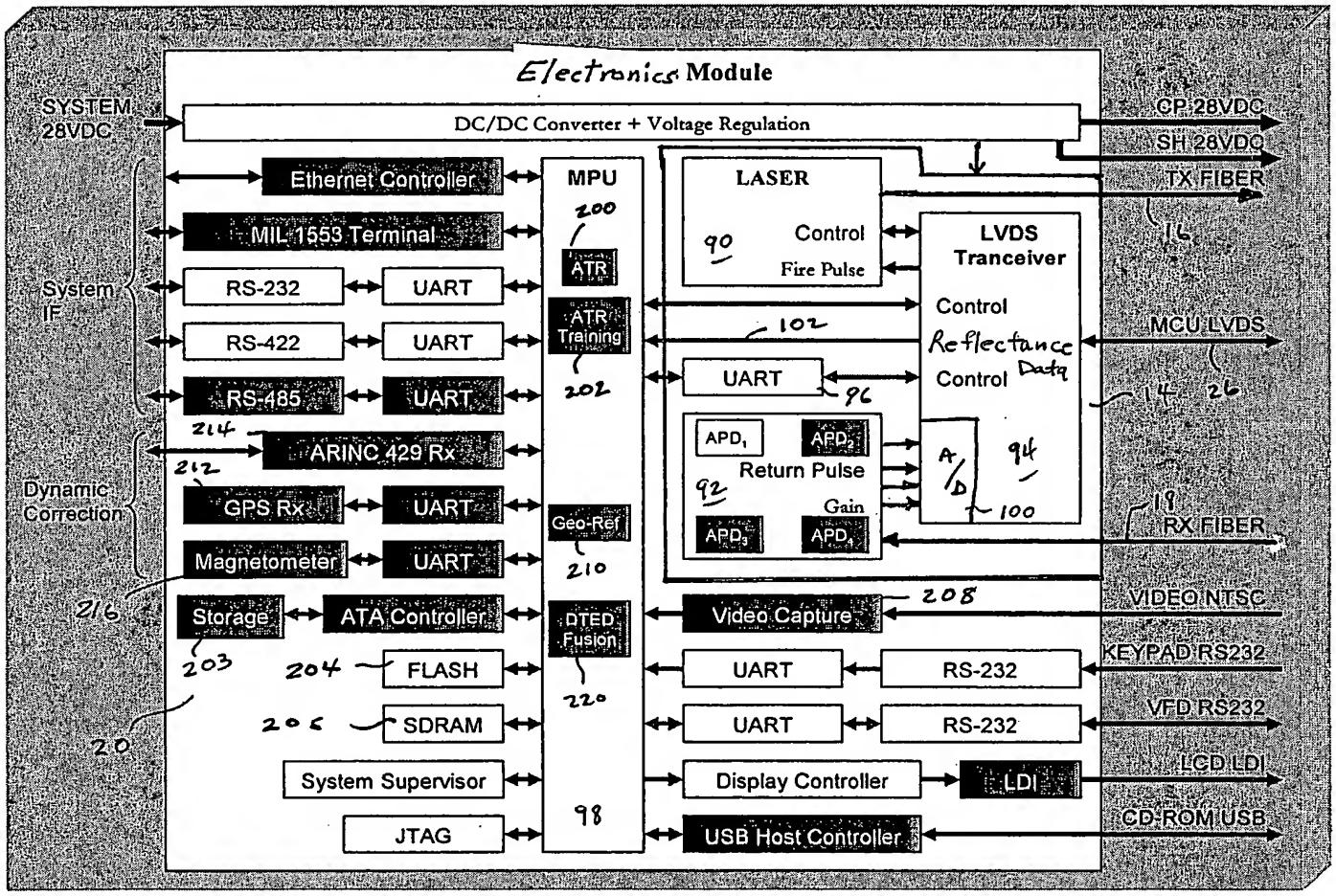

FIG. 6

BEST AVAILABLE COPY

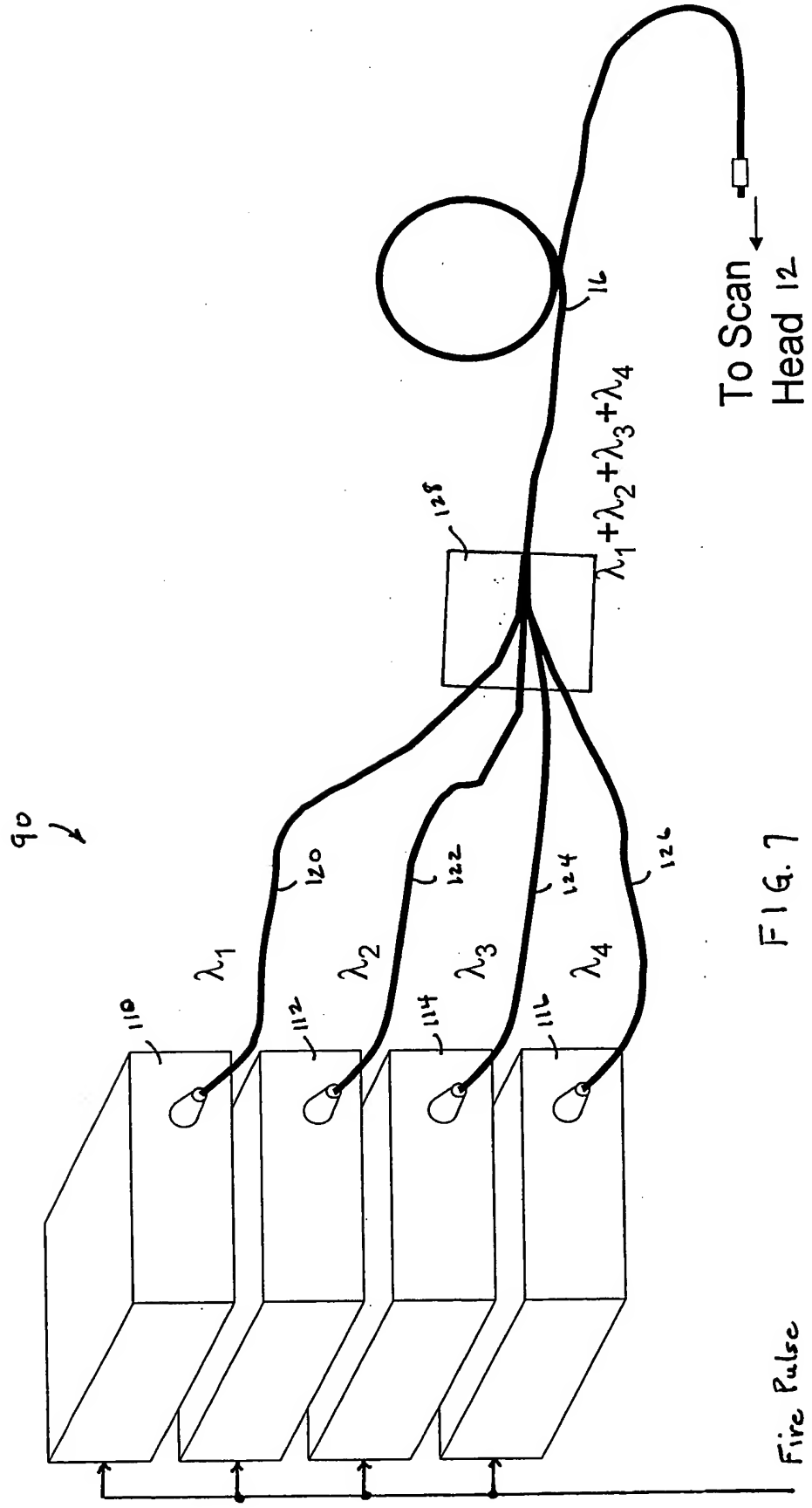
90
110
112
114
116
120
122
124
126
128
16
λ_1
λ_2
λ_3
λ_4
$\lambda_1+\lambda_2+\lambda_3+\lambda_4$
To Scan Head 12
Fire Pulse

FIG. 7

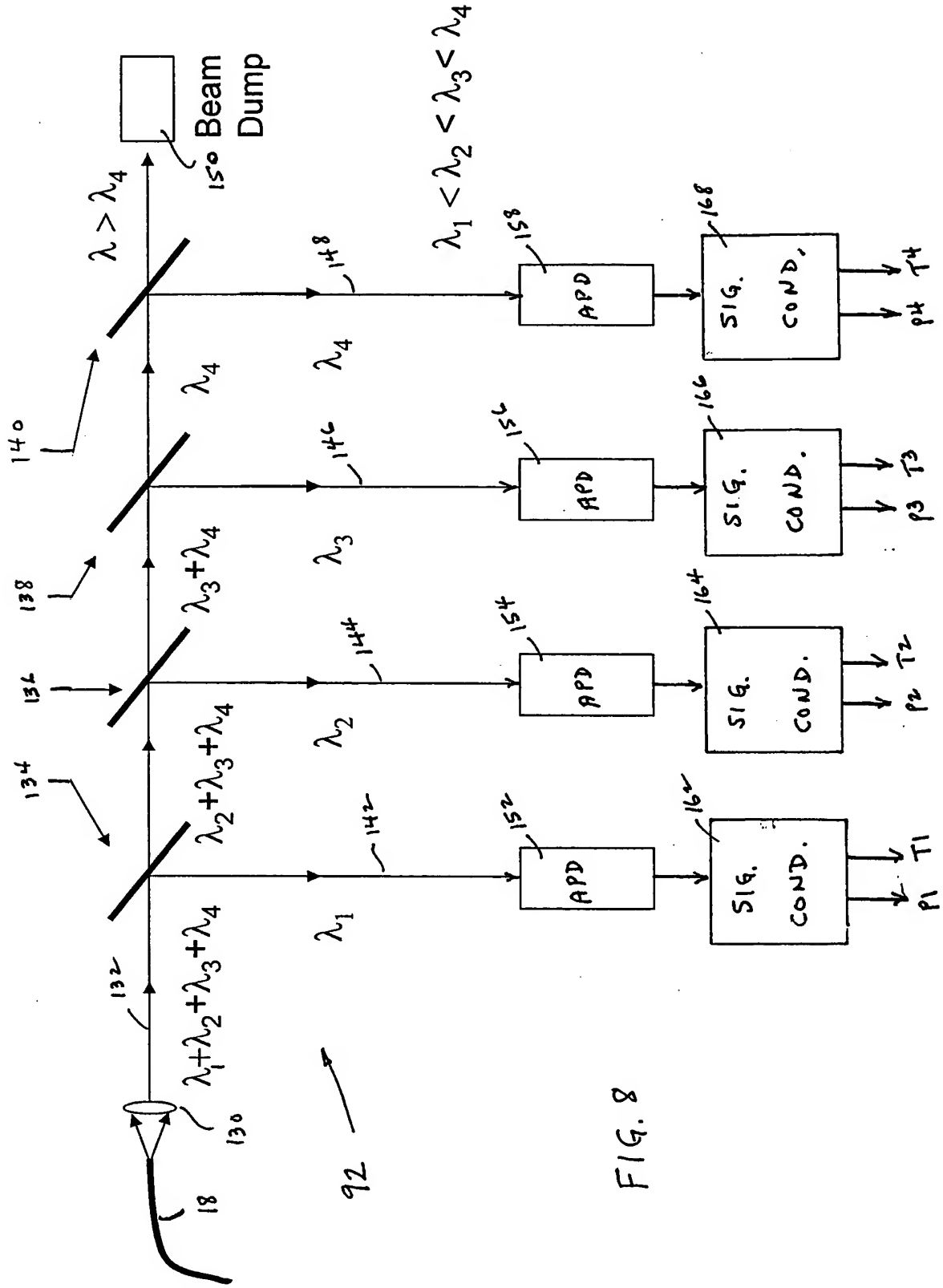
Beam Dump
150
$\lambda > \lambda_4$
$\lambda_1 < \lambda_2 < \lambda_3 < \lambda_4$
140
138
136
134
132
130
18
92
$\lambda_1+\lambda_2+\lambda_3+\lambda_4$
$\lambda_2+\lambda_3+\lambda_4$
$\lambda_3+\lambda_4$
λ_4
λ_1
λ_2
λ_3
λ_4
142
144
146
148
APD
152
154
156
158
SIG. COND.
162
164
166
168
P1 T1
P2 T2
P3 T3
P4 T4

FIG. 8

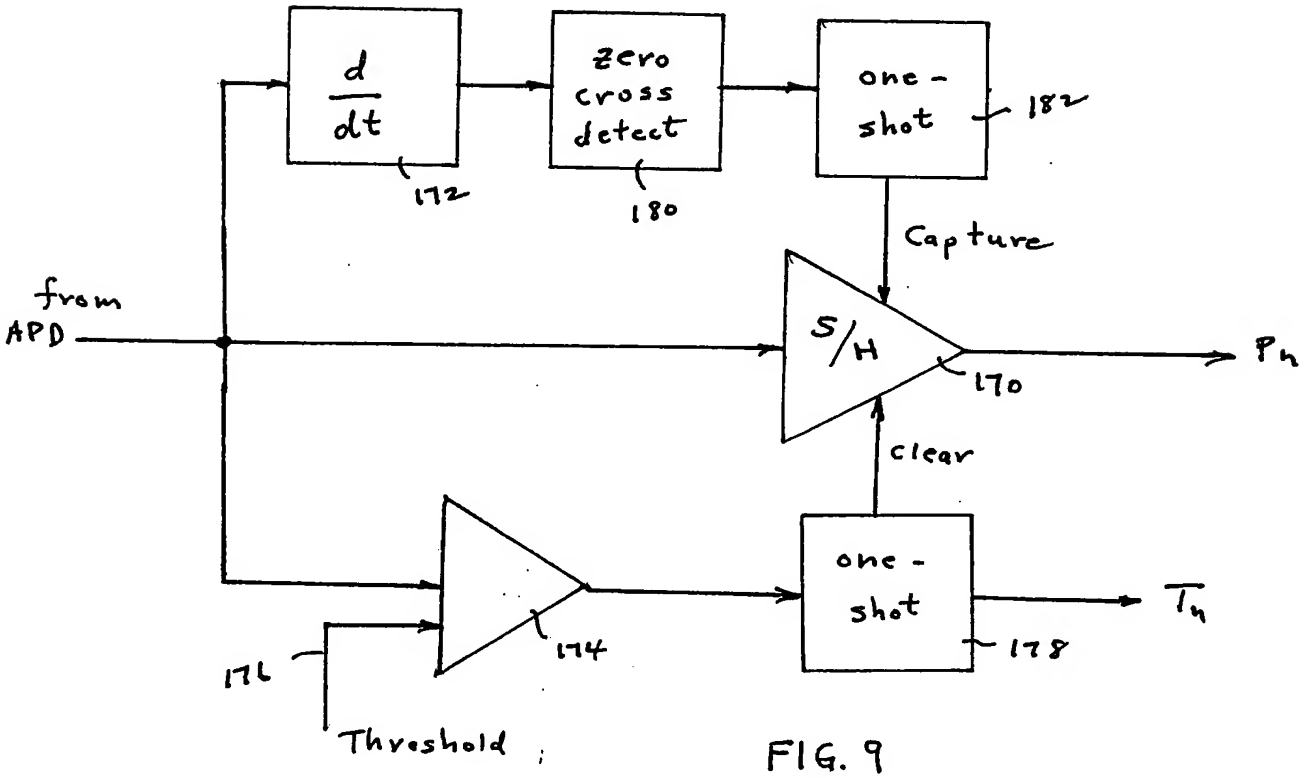
d/dt
zero cross detect
one-shot
182
172
180
Capture
from APD
S/H
170
P_n
clear
one-shot
178
$\overline{T_n}$
174
176
Threshold

FIG. 9

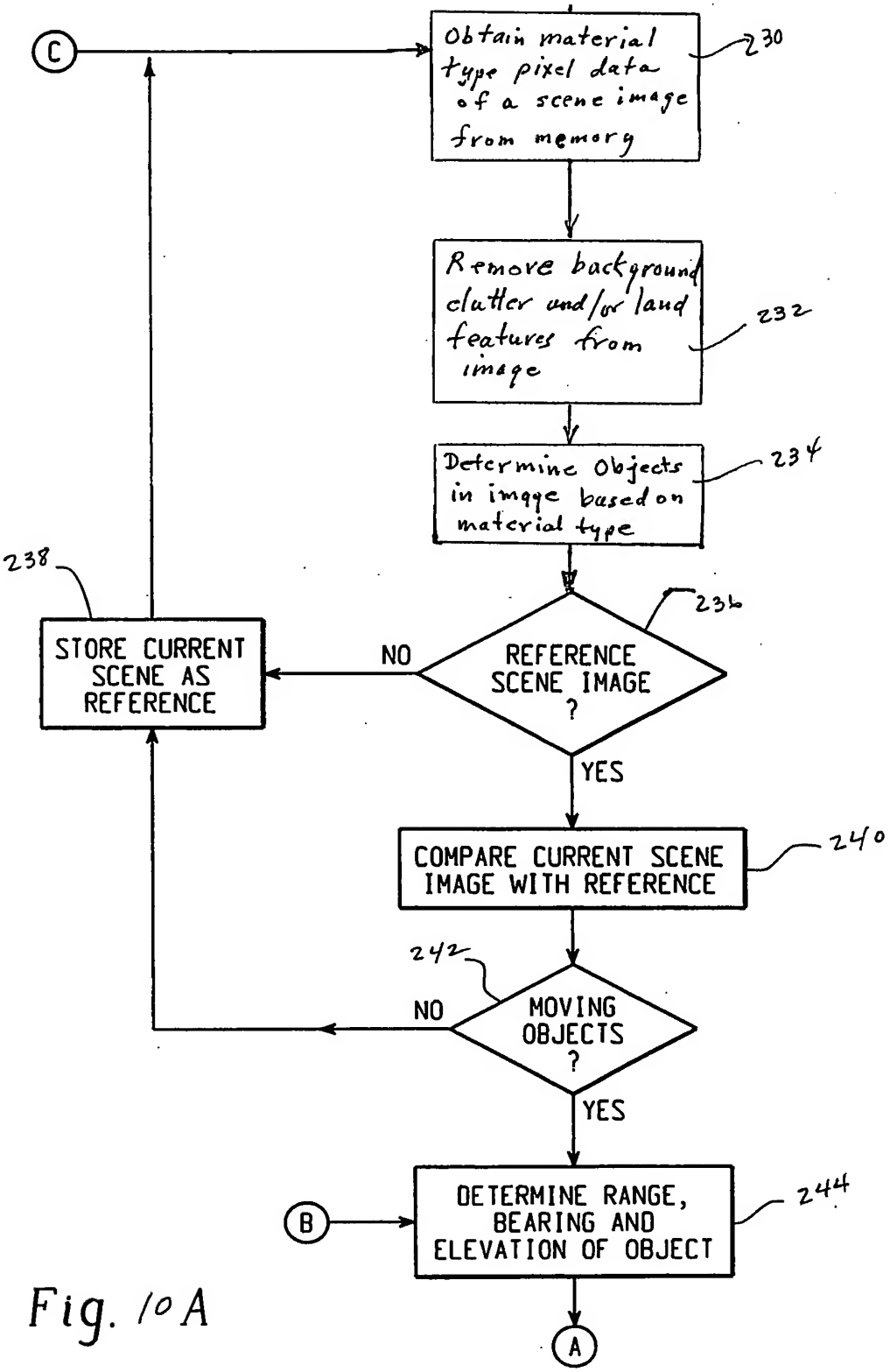
C
Obtain material type pixel data of a scene image from memory
230
Remove background clutter and/or land features from image
232
Determine objects in image based on material type
234
REFERENCE SCENE IMAGE ?
236
NO
STORE CURRENT SCENE AS REFERENCE
238
YES
COMPARE CURRENT SCENE IMAGE WITH REFERENCE
240
MOVING OBJECTS ?
242
NO
YES
B
DETERMINE RANGE, BEARING AND ELEVATION OF OBJECT
244
A

Fig. 10A

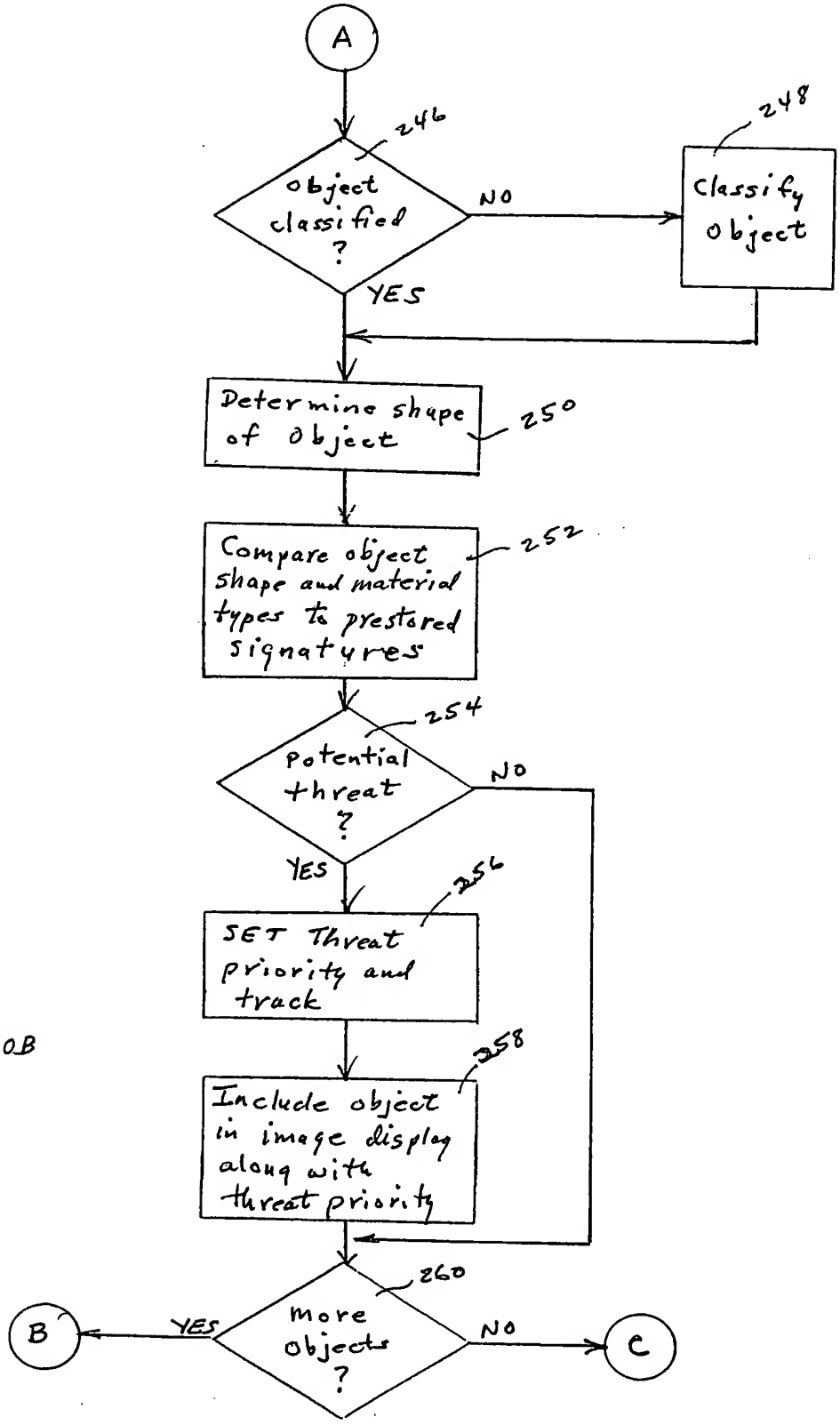
A
246
object classified ?
NO
248
Classify object
YES
Determine shape of object
250
Compare object shape and material types to prestored signatures
252
Potential threat ?
254
NO
YES
SET Threat priority and track
256
Include object in image display along with threat priority
258
More objects ?
260
YES
B
NO
C

FIG. 10B